ITEMS OF INTEREST.

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Shots from the Profession.

HUMAN PHYSIOLOGY.

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(CONTINUED FROM PAGE 200.)

Most of the albuminous substances possess strong resemblances, but, as they also differ in many minor characteristics, I will notice them individually.

Fibrine is found in the plasma of blood, in lymph, and in chyle. It has the distinguishing property of spontaneous coagulation. It is colorless, elastic, opaque, and insoluble in water. The gluten of wheat flour is extremely like it.

Albumen exists in the plasma, in lymph and in small quantities in saliva. It does not coagulate spontaneously, but requires the application of heat. The white of an egg is nearly pure albumen.

Albuminose is the result of the digestive process, and resembles albumen in many of its properties. It will pass readily through a membrane while albumen will not.

Caseine is found principally in milk, which is the only animal fluid positively known to contain it. It is unaffected by heat, but in the presence of an acid will coagulate. Vegetable caseine is called legumin.

Ptyaline exists in the saliva, and gives to this secretion its peculiar action on starch. It is precipitated by alcohol in excess.

Pepsine is contained in the gastric juice.

Pancreatine is found in the pancreatic juice and acts upon fats to form an emulsion.

Mucosine exists in the different varieties of mucus and gives to them their viscidity.

Myosine can be obtained from striped muscular fiber. It is soluble in dilute saline solutions, but undergoes in the act of solution a radical change.

Collagen forms the interstital mass of bones, tendons and ligaments; while chondrine is a similar substance in cartilage. Upon boiling these substances in water and cooling, they can be obtained in a gelatinous condition, which is but a simple transformation and not a decomposition or combination. From their chemical reaction there seems to be a close relationship between chondrine and mucosine.

Elasticine comes from yellow, elastic tissue, such as is found in the coats of large arteries and in the *ligamentum nuchae*. It is soluble in strong alkalies at boiling temperatures.

Keratine is obtained from hair, nails, and feathers.

The albuminous proximate principles go so wholly toward nutrition that very little of them is discharged.

Various substances exist in the body which give color to the tissues and fluids. These are known as coloring matters, and notwithstanding their striking optical character, present more difficulties in their study than the previously considered classes. These difficulties arise from the fact that many of them exist in such small amounts; and even when in sufficient quantity for study, become decomposed in their extraction. The nature of colors and how they are produced are subjects much discussed. Some contend that color is not a substance but depends on the mere arrangement of particles, and some maintain that a given shade is due to the combination of two or more colors, while others hold that the result is merely the deepening of one shade. Coloring matters are all nitrogenous, and most of them crystallizable.

Chlorophylle and hemoglobine are the most important of this group, and are very analagous in character; the former being the principal coloring matter in the vegetable world, and the latter in the animal. Nearly all other colors in the animal kingdom, especially in the vertebrates, are supposed to be derived from hemoglobine, which is the coloring matter of the red corpuscles, and forms a large proportion of their solid matter. It is also found in, and gives color to muscular structure. It crystallizes, and is soluble in water, and in dilute alcohol. The capacity which it possesses of absorbing oxygen becomes its distinguishing quality, for its color changes according to the proportion of that element from a bright to a dark red. If examined chemically iron is revealed, which is the more remarkable, as this hemoglobine is the only substance of the body, except the hair, in which iron exists. Iron is present also in the green coloring matter of plants, or chlorophylle, and is indispensable to vegetation—vegetable life ceasing without it. It is equally necessary to the blood, and is introduced into the system from both animal and vegetable food. Beef is rich in it,

and the color of strawberries is due to it. Very little iron is thrown off from the body. The hair is said to contain seven per cent.

Melanine is the coloring matter in the black pigment of the eye, in the skins of the black and brown races, in the hair, and in dark complexioned people. It has never been crystallized, and is insoluble in alcohol, ether or water.

Bilirubine is the red coloring matter of the bile, as its name indicates. It is found in the liver, and is washed into the ducts leading from that organ, becoming mixed with the bile. It is soluble in chloroform, but slightly so in water, and can be produced in crystals.

Biliverdine, according to its name, is the green color of the bile, and can be obtained by the use of alcohol, in which it is soluble. It is formed from bilirubine and discharged by the fæces, imparting color to them.

The color of the urine has been studied by the most scientific, but with poor results. Urochrome imparts to it a yellowish, amber tint. This substance is freely soluble in water, crystallizes, and upon exposure to air oxidizes, becoming of a reddish tinge. This change is noticeable in urine that has stood some time, and is also produced sometimes within the bladder during certain diseases.

Luteine is found in small quantities in the body, is a yellow color, and obtainable from the yolk of egg.

The green color of plants is due to the chlorophylle they contain. This substance plays an important part, in connection with solar light, in transforming other proximate principles. It was long supposed to be but a single matter in its composition, but now believed, according to experiments made by M. Fremy, to be composed of two colors,—yellow, and a bluish green—which are mixed in the leaves. This theory gives an easy explanation of the varying tints of autumnal foliage.

Another class of proximate principles is the crystallizable nitrogenous substances. They are colorless, contain nitrogen, and are readily converted into crystals.

Lecithine, from the Greek, *lecithos*, the yolk of egg, when first studied was denominated phosphorized fat, but this is certainly a misnomer, as fats do not contain nitrogen. It can be obtained from blood, and nervous tissue, being peculiar as the only organic constituent of the body possessing phosphorus. A large amount of it is taken into the system, and goes toward the nourishment of the brain.

Cerebrine exists in brain and nervous mass.

Luceine has glistening, white crystals, and is found principally in gland tissue.

Sodium glycocholate and sodium taurocholate are coloring matters in the bile, the latter receiving its name, because of its being obtained

first from a bullock. Sodium glycocholate is formed by glycocholic acid uniting with sodium.

Creatine comes from muscular structure.

Creatinine is formed by the decomposition of creatine. It exists in the urine only.

Urea is obtainable from urine in colorless crystals with a neutral reaction. It is soluble in water, and forms the bulk of the solid matter in the urine.

Sodium urate and sodium hippurate are unmistakably present in the urine. The latter was first found in the urine of the horse. They are the result of sodium being combined respectively with uric and hippuric acid.

[TO BE CONTINUED.]

DENTAL CARIES.

BY G. P. RISHEL, D.D.S., HORNELLSVILLE, N. Y.

Theories in regard to dental caries have been widely discussed in dental societies and journals for many years, but not until the remarkable influence of the resistive force—vitality—was understood, was there anything like a satisfactory solution of the problem. Recognizing that the mouth is a chemical laboratory, ever furnishing some active agent of destruction, we understand caries to be the result of chemical action, but modified by the resistance of the vital forces. Therefore, while accepting as partially true various theories in regard to the injurious effects of confectionery, acid fruits, medicines, etc., we must take into the account that modifying force which should be capable of resisting the encroachment of disease. Sugar, a staple article of diet, entering largely into the composition of jellies, preserves, cakes, confectionery, etc., has been considered a potent cause of dental caries. So, too, the free use of acid fruits is charged with frequently producing exceeding sensitiveness of the teeth with marked tendency to decay; but, as these fruits were intended for our enjoyment and are necessary to our health, the teeth should not be injured by their use. Many people ascribe the beginning of decay to the use of medicine, and it is a fact that too little care is exercised by many physicians in the administration of certain remedies; but it is quite evident that effects ascribed to medicine have frequently been due to that lowered vitality which made the use of medicine a necessity. Thus, instead of being the cause of decay, it may have prevented the entire destruction of the teeth. The local effects of acid medicines may be averted by the employment of an antacid mouth-wash, such as a few drops of ammonia or a few grains of bi-carbonate of soda in water. The teeth should, under normal conditions, be capable of resisting the action of the oral

fluids at all times. When this is not the case, the explanation is to be sought either in structural defects or systemic conditions.

Much has been said and written of the deprivation to bone and tooth structure by the use of bolted flour, and the importance of this suggestion cannot be too strongly urged, for we have abundant data to prove that a change of diet may result in a radical change of tooth structure. The use of refined flour will account, however, for but a small percentage of the destruction going on in the mouths of our patients, for it can be easily demonstrated that there is an abundant supply of teeth material upon our tables, which, if assimilated, would be more than sufficient for all demands.

Mal-nutrition, therefore, we consider to be the principal cause of defective tooth structure. Depressing systemic influences, resulting from nervous irritability, and produced by high living, over stimulation, and the rush for wealth, place and power, are destroying not only the teeth but the lives of the present generation. Even the children are not exempt, and from the time they are large enough to "show off" to the competitive examinations of school days and the cramming processes of college life everything is on the high-pressure principle.

With a shattered nervous system the young man of twenty-one rushes into business, politics, or a professional life, ill prepared to meet the drain upon the vital forces, but still spurred on by ambition or a love of gain.

Is it any wonder that the trifacial,—the nutrient nerve of the teeth,—which is peculiarly susceptible to systemic influences, should imperfectly perform its functions? Patients of the nervous or of the lymphatic temperament suffer first and most, owing to the quick response to every influence of the one and the slow but unresisting qualities of the other. Surely the difference between the strong, hard teeth of the bilious, and the soft, bluish-white teeth of the nervous temperament cannot be due to the food derived from the same table, but rather to a difference in the power of assimilation, dependent upon nervous influences. In this connection it may be well to refer to the usual classification of caries—black, yellow and white—and to the somewhat arbitrary assignment as a cause for each variety—the effect of sulphuric, hydrochloric, and nitric acids respectively.

If this theory is true, we should expect to find black decay as the result of the action of sulphuric acid upon such tooth structure as contained the largest percentage of organic material, but, on the contrary, it is universally found in teeth above medium in structure. The writer is inclined to accept the views of Magitot, that "caries is one," and that the different varieties of color are due to the resistive force, which, in the strong basal temperaments, as the bilious and sanguine, is capable of almost, if not quite, arresting decay.

Many observers have noted the difficulty of successfully treating the teeth of patients who are for the time under the depressing influence of severe mental labor or excitement, and the magical effect produced by a return to normal conditions. This may account for some of the difficulties of city practice as compared with that of the country, and may also, in a measure, explain the cause of great differences of opinion in regard to remedies and methods.

Admitting the deleterious effects of chemical agents to which the teeth are constantly exposed, and giving due weight to the direct and indirect influences of food, climate, medicine, etc., I contend that caries, although not caused by, is largely due to loss of vital force resulting from systemic depression, and therefore concomitant with high civilization.—*Cosmos.*

THE DEVELOPMENT OF THE TEETH.

BY CARL HEITZMANN.

This is one of the most interesting processes that we know of, and is very complicated indeed. We know that the first start of the development in the third embryonal life, is that the surface of the epithelium in the oral cavity sends a prolongation downward. A tooth, therefore, is epithelial in its first stage of formation, the same as all other horny formations. The teeth are transformed from the epithelial into the medullary tissue, and from that arise all other dental tissues. Especially the formation of the enamel can be understood only by sustaining this theory of reduction. Why teeth should start as epithelial forms is a puzzle, unless we take the ground of Darwin that we find analogies in the development of the organs of animals; we find quite a number of animals which, instead of teeth, have horny epithelial formations in their oral cavities. This would indicate that the teeth originally start as epithelial forms in their lowest stage of development. From the epithelium a medullary tissue arises which becomes myxomatous, as the pulp tissue does, then breaks down into the medullary stage again, and lastly forms the enamel. Waldeyer claims that each epithelial body is calcified; while Kolliker believes that the calcified mass is a secretion of the epithelia. Neither of these assertions is correct. The truth is that the enamel is built up on the same plan as dentine, from medullary tissue—the only difference being that in the former the start is epithelial in nature. Dentine is for a long time known to originate from medullary elements. How the cementum is formed we do not know yet.

In swabbing teeth cavities with carbolic acid it is well to mix it with three or four times its bulk of glycerine.

"ITEMS OF INTEREST."

BY DR. C. D. CHENEY, HOBOKEN, N. J.

The title of your paper is suggestive, and the contents have been, upon the whole, practically interesting.

We, presuming to speak for numerous subscribers and readers, wish to commend and encourage the editor's efforts. We (again presuming) would express our earnest wish to have this publication sustain its interesting and distinctive character, and continue to give us the practical and useful, as it has so ably succeeded in doing in the past. In the publication of *complete* reports of society meetings a great deal is included which is not suggestive or even interesting. Why not assert the characteristic of the ITEMS, and select such remarks as contain some vitality or suggestion of ideas unburdened by mere committee reports, order of business, adjournment, and the numerous other routine commonalities of parliamentary bodies? A terse statement of selections of officers, places of meeting, subjects discussed, with a promise of future excerpts, would be more easily remembered and appreciated than to have the whole ollapodrida in one dose. Short articles by practical, thinking men, are likely to contain more pith than the spouting of Dr. Buzfuz and Snuffin, who enjoy the sound of their own voices before the meeting.

As historical records these reports may possibly be important, but this little journal is to be of interest and useful to us of to-day—the societies take sufficient care of the historical part.

Now, dear Mr. Editor, do not take the matter too much to heart, but believe us, you have our earnest good will and support while you publish ITEMS OF INTEREST.

GOLD FILLINGS IN ARTIFICIAL TEETH.

BY JOHN G. HARPER, D.D.S., ST. LOUIS.

Frequently the dentist is asked to make a gold filling in an artificial tooth for the purpose of covering the fact that the teeth are not natural. To drill a cavity in an artificial tooth requires a diamond drill—an expensive instrument—and it requires a great deal of care and time to make the filling. I have been pursuing a different method, which, I find, results to my satisfaction and that of the patient. Frequently we make gold fillings in the natural teeth at the neck of the teeth. These fillings are easily imitated in the artificial tooth by first grinding from the tooth the thickness of No. 30 gold plate, and as wide as you desire. Replace this part of the tooth with a band of pure gold, extending back of the tooth so as to be imbedded into the rubber or celluloid plate. When the work is completed, finish the gold in the usual manner, and you have a good representation of gold filling, at small expenditure of time.

CELLULOID.

BY DR. L. H. DELANGE.

It is due to the earnest effort of the Messrs. Hyatt that celluloid has reached even its present state, as the compound we have now has certainly more plasticity and less inflammability than the collodion obtained by the process first patented.

In experimenting with camphor and soluble cotton, they were mixed and casually squeezed in the hand, when it was found that they compacted and showed signs of combination. It was previously known that a solution of camphor and alcohol was a solvent of the soluble cotton, but this proved that alcohol need not be used, and that camphor was, under proper conditions, a perfect solvent.

It was then ascertained that a chemical combination took place; and, a short time after the first experiment, by heating the material to a lower temperature than was necessary to melt camphor, a lump of solid celluloid was produced. Subsequent events have developed the fact that a smaller quantity of camphor could be used, thereby making better plates, and almost doing away with the unpleasant recollections o last winter's clothing.

One of the greatest objections against celluloid, formerly urged by the vulcanists, was, as we have said before, the unpleasant camphor taste, and we believe this is still put forward by some of the non-experimenters. This difficulty has been well nigh, if not entirely, overcome.

In working this substance no disagreeable odor is noticed. The whole substance has now properties of lightness, toughness and strength.

Celluloid now is entirely different from that which was first manufactured. Dentists who made use of it at that time had obstacles which they thought they would never surmount. These failures caused a number of the experimenters to toss their celluloid and apparatus to the waste pile.

On account of the resemblance of celluloid to the gum being so perfect, the plain teeth can be used, and you know full well what an advantage that is.

In doing away with the gum teeth we get rid of the proclamation of falsity contained in the unsightly separation of the blocks. Then the cleanliness with which this can be manipulated must give general satisfaction, together with the little work required in finishing. It is susceptible of the highest polish, and retains such a coralite lustre that it is now used by jewelers as an imitation of that substance. Another great advantage is the impossibility of detecting a repair.

In making celluloid it is of the utmost importance to pay particular

attention to the thermal changes, as when heated over 280 degrees Fahrenheit, the mass becomes spongy, and when not heated up to this point, it has not the required plasticity; therefore, the pressure should be applied gently at first, and increased as it approaches the finishing point.

THE DECIDUOUS TEETH.

BY DR. NORMAN KINGSLEY, OF NEW YORK.

Why do we preserve the deciduous teeth? Do we say simply we conserve these teeth because we have been in the habit of saying so, or because it is a popular notion that the jaws will contract, or not properly expand, if we do not preserve these teeth, or do we know it from our own observation? No man can speak positively excepting from his own knowledge and observation. Is it a fact, that it is essential that the temporary teeth should remain? Is it a fact, that for the good of the position of the permanent teeth, the temporary teeth should remain? Is it a fact, that the premature extraction of these deciduous teeth affects the development of the second set? From my own observation, not from yours, I think you might extract one or all of the temporary teeth at an early period of the child's age, without a *certainty* of producing any irregularity. There *might* be one *possible* irregularity. If all the deciduous teeth were removed long anterior to the eruption of the permanent, the bicuspids and cuspids might be in contact, and the cuspids might appear prominent and out of line. They *might*, I say. This *might* occur, but it is not at all *certain* that it would. It is possible that a perfectly regular set of permanent teeth may appear after the premature extraction of the temporary teeth. Other close observers have arrived at the same conclusions. In regard to operations on the temporary teeth, the dentist should be governed entirely by his own judgment. On general principles, I would say it would be better to extract dead and troublesome deciduous teeth. I would say, stop decay when it begins, and save these teeth from disease till Nature's time for their removal. Stop decay by filling, or if the case calls for it, by cutting away. As for materials, I regard gold as the very *worst* of all materials for children's teeth, on account of the age, and on account of the impressions on the child's mind made by difficult or tedious operations. The great thing to be avoided is to allow the impression of "the horrid dentist" to enter the child's mind, so that in after years he will only apply to us as the *last resort—as the last resort.* Therefore, I would use anything that would make these operations easy and stop decay. It is a question sometimes, whether cutting out the decay where it would be likely to continue would be advisable. In superficial decay I would unhesitatingly say cut it away. There are no rules; we must use our judgments, having correct principles upon which to base them.

A MERCURIAL MOMENT.

BY W. GEO. BEERS, L.D.S., MONTREAL.

Common sense, as well as chemistry, though that is tautological, seems likely at last to dispose of the hobgoblin style of denunciation of amalgam used by some superficial investigators to frighten simple men and silly women. Instead of the simple sneer, born of bigotry and bred by conceit, which some of the would-be gods of dentistry on this continent seem to think more than equivalent to candid examination and fearless defense, we have lately had dispassionate and scientific experiment, and conclusions which are better late than never. The amalgam cry has been a peg upon which some very inferior operators have hung their fortune. It looked well to extol gold in every case, even if one hadn't the ability to use it. "Anybody can use amalgam. I don't use it." "Not everybody can use gold. I use gold." True, scores of teeth attempted to be filled with gold became reproachful stumps, but better the forceps than amalgam for these brilliant practitioners.

As far as Canada is concerned, I can safely venture to say that the gold fillings of the few anti-amalgamites, when they stand at all, won't stand criticism.

This is a subject, however, to evoke more pity than preaching; and were it not for the dangerous use they make of the crooked knowledge they possess, in terrifying people who are constitutionally predisposed to terror, whether on the subject of amalgam or vaccine, the opinions they hold would only serve to immortalize their own lack of scientific and philosophical acumen.

Among the amusing questions asked me, consequent upon this contagious cry, the following letter speaks for itself. The manner of the reply may serve as a model for confreres afflicted by such ridiculous correspondents, whose education and position in society ought, at least, to secure them more common sense.

"DEAR SIR:—Having recently had several teeth filled with the filling recommended for frail back teeth by yourself, and used by Dr. ——— here, I now address you to know *if there is anything poisonous or deleterious in its composition*, likely either to injure the teeth or the constitution. An answer will oblige Yours truly, ———.

MONTREAL, ———.

MY DEAR MADAM:—In reply to your extraordinary letter I beg to express my surprise that you are not aware of the fact that the dental profession devotes itself to the annihilation of the human race, in the humble way of introducing "poison" into the teeth.

Believing that the world is not large enough for its population, and that emigration to this continent is attaining a state of fanaticism equal

to the Crusades, we are specially leagued, and in Canada licensed by act of Parliament, to "injure the teeth and constitutions" of those who become our patients, and in this way assist the various providential means by which our mortality returns are increased. In a thoroughly philanthropic and scientific spirit we are thus using "poison" and other "deleterious" substances, such as have been very properly supplied to you, and which, I trust, may soon afford you a happy flight to those mansions in the skies where wicked teeth cease from troubling, and patient and dentist is at rest. Yet it is provoking to find, that in spite of our consistent poisoning, *some* of our patients do not die. We are, however, considering the propriety of introducing the guillotine, the thumb-screw, rack, etc., as we find "poison" to be prolonged, expensive, uncertain, and somewhat disfiguring to the complexion of the deceased.

We kill according to the fee received. Cheap dentistry is necessarily prolonged poisoning, owing to the adulteration. I cannot tell whether or not Dr. —— confines himself to the purest poisons. He may possibly be producing in your case a *lingering* death. Were I you, I'd ask him to make it "short and sweet." I always advise expedition. As for me, I prefer strychnine in my filling—it is quick; though the guillotine will doubtless supersede it for rapidity of destruction. A guillotine is rather unsightly, but it effectually cures all trouble in the teeth, by going to the root of matters, and removing *the crown*. I might say we now have the germ of a gallows in a Suspension Dental Engine, designed from an instrument found in the Spanish Inquisition.

Our success as a profession may be judged from the fact that there were over two hundred deaths in Montreal last week, though we have only thirty dentists, and six of these are starving. The prospects are cheering to men who devote themselves to the extermination of the population.

With profound respect for your very intelligent appreciation of the objects of the profession, and much esteem for your high opinion of my personal faith in *poison* as a filling for a tooth, believe me,

Respectfully yours, W. G. B.

P. S. I have just learned that a lady for whom I filled two cavities with amalgam two years ago, has been drowned. You know that the god Mercury was the messenger of Jupiter, and had the office of conducting the soul to the under-world. It was Mercury who turned Hersa, the daughter of Cecrops, into a black stone, when she snubbed him on popping the question. Many common amalgam fillings turn black. It may be the beginning of a similar fate. There is something, after all, in the mythology of the Greeks. May we both live to become wiser.—*Dental Miscellany.*

TARTAR, AND ITS REMOVAL FROM THE TEETH.

BY THEODORE F. CHUPEIN, D.D.S., PHILADELPHIA.

This is a subject which should claim more attention from the dentist than it generally does.

As a general rule the text books treat the subject with only a passing notice. The last edition of *Taft's Operative Dentistry* devotes but a few pages to the entire subject, while the instruments illustrated therein for its removal are clumsy, old fashioned, and ill adapted to the operation.

Many valuable teeth are lost by becoming coated with this substance, which, not being removed while in the soft or chalky state, assumes a hard, sometimes a flinty, consistency, gradually pushing away the gums before it, causing them to bleed at the slightest touch, giving rise to fetid breath, and eventually causing a recession of the gums, an absorption of the sockets, thereby leaving the teeth with no firm support, when they loosen, and become in this state such a source of annoyance, and sometimes of pain, as to demand their removal. Even before the case has assumed such proportion as is related above, a careful examination will show, high above the free margins of the gums, rings or nodules of hard tartar, and the teeth slightly loose. If the case be taken in hand at this point there may be a chance to restore it to a normal condition by removing *all the tartar;* but if it be permitted to encroach until it reaches the alveolar border or beyond the reach of the instruments used for its removal, it becomes almost impossible of removal, or so painful that the patients cannot or will not submit to its entire removal; while in those who do submit to the operation the flow of blood from the irritated gums is so excessive as to leave the operator in doubt as to whether the work has been thoroughly performed. We have seen cases where the teeth have been so encrusted that they have actually been hidden from view by excess of the deposit, and to remove the tartar when it has been allowed to increase to this extent would be equal to the extraction of the teeth; for bound together in this condition the tartar alone held them in the mouth, and if it were removed the teeth would fall out from the lack of support.

It is not our intention, in this essay, to go into an explanation of the constituents of tartar, its analysis, or the proportion of animal and mineral matter it contains, or of such general facts in relation to it as are well known to both the student and practitioner of dentistry. We purpose merely to offer some thoughts on the subject, as well as some practical suggestions for the cleansing of the teeth that have become coated with this substance.

Tartar is an elimination of the saliva, and attaches itself—after becoming precipitated—to the teeth nearest the salivary ducts, from which

the saliva flows into the mouth. Thus we find it most excessive and attached to the first and second upper molars, on each side, on their buccal surfaces, and to the lingual surface of the lower incisors and cuspids, these teeth being most contiguous to the superior and inferior salivary ducts.

If the food were vigorously chewed it is doubtful if tartar would collect on the teeth at all. In evidence of this it is seldom found on the teeth of habitual tobacco chewers or on the teeth of such domestic animals as horses, sheep, goats, cows or other ruminantia, while this assumption is still farther corroborated in the evidence we all have had of patients, who, having an aching tooth on one side of the mouth, chew their food entirely on the other side to avoid pain, when we find that the teeth on the side which has been inactive become thickly coated with tartar, while the other side, where the teeth have been vigorously used, is almost or entirely free from any deposit.

It is not always, however, that these teeth which are in the immediate vicinity of the salivary ducts, become coated with tartar. We find it at times showing a peculiar fancy for one particular tooth remote from these points; sometimes a central incisor or lateral of the upper jaw being a victim to the overweaning affection of this idsidious destroyer, while the other teeth where we might expect it, are comparatively free of this deposit, and thus many a beautiful tooth, "without spot or blemish" of decay, has to be removed from looseness caused by the tartar having insinuated itself so far on to the root as to produce absorption of the socket, destruction of the investing membrane, the recession of the gum, and, as a consequence of these, the loss of the tooth.

We find an absence of tartar in certain forms of dyspepsia; the frequent acid eructations of this disease seeming to act on the mineral constituents of this substance, thereby keeping the teeth free from any excessive deposit. In pregnant women, too, there is sometimes an absence of any large accumulation of tartar on the teeth. This may be attributed to a like cause: for there seems to be inseparable to this state so strong an acid condition of the system that one lady is wont to speak of a friend or acquaintance in this condition as being "off on a vinegar voyage."

Physiologists have not as yet determined the use of tartar.

Tartar takes its name from its resemblance to an incrustation found on the inside of wine casks.

Tartar is recognized under three colors—black, green and yellow. Black tartar is principally found in the mouths of smokers, and probably derives its color from the stain eliminated by the nicotine in the smoke. Green tartar is supposed to be yellow tartar which has become more dense with age. Yellow tartar is most probable the second stage

or formation of the first precipitate, which is found on the teeth by a cream colored, softish deposit, easily removed with the tooth-brush. There seems to be no chemical difference in the composition of the three varieties.

We find the surface of tartar which lies next the cheek or tongue to be smooth, while that which is contiguous to the gum is rough. Additions are generally made to the rough parts, which accounts alike for the great disposition of the gums to bleed at the slightest touch, as well as to their gradual recession, as new deposits are added.

When tartar is of a chalky consistency it may be readily removed with almost any of the small scalers made for this operation. It is only when it has become very dense, and is almost out of sight and out of reach, that its removal becomes difficult and calls for the employment of delicate instruments and much patience for thorough work. In this condition and position acids have been suggested for its solution, but we have felt timid of resorting to these, as we felt that an acid that would dissolve the tartar might dissolve the tooth.

While filling teeth to which the rubber dam had been applied, over several we have frequently noticed rings or nodules around the teeth that were entirely out of sight and not suspected, over which the dam had worked itself. It occurred to us, therefore, that it might be a good plan to apply the dam to assist in the removal of tartar. We frequently do this, and by its aid are enabled to make very thorough work of cleansing the teeth of tartar.

We seldom attempt the removal of all the tartar at one sitting. When in a chalky condition, around the lower teeth, it is our practice to remove as much of this as we can from all the surfaces, using those thin, flexible scalers that are now found at the depots to cleanse between the teeth. These pass readily through at the necks of the teeth, and with them very thorough work can be accomplished, except when the blood flows so freely as to obliterate the view. At the next sitting it is a good plan to apply the dam over six, eight or ten teeth, forcing this down on to the soft, flabby and yielding gums, and applying ligatures to each tooth. After a time the dam becomes very adherent, and the ligatures may be removed; and when found necessary the dam may be insinuated still farther on the teeth by forcing small pieces of spunk between the teeth. In this way, and with the aid of a mirror, well tempered, sharp and nicely made scalers, all the tartar can be removed, and this, too, with none of the annoyance of the free flow of blood from the gums which so frequently defeats the thorough performance of this operation, and likewise preventing the patient's poking the tongue in the way of the operator. The rubber dam is prepared by punching six, eight or ten holes, three-sixteenths of an inch apart, and in the form of a semi-circle. It is first stretched over one tooth,

on the right or left side, and held down by aid of a clamp, then stretched over the next tooth, and the next, until all are completely encircled. They are then each litigated, one by one, and then the clamp may be removed. After the dam becomes adherent the ligatures may be removed, one by one, and each tooth thoroughly cleaned as each ligature is removed.

It may not be generally known that tartar is frequently more easily removed by *pushing it* than by *pulling it.* A small nodule will often defy a most vigorous pull to dislodge it, while it will yield most readily and instantly to a delicate push.

Tartar sometimes shows itself by a darkened color on the gums, or indicates its presence on the tooth by a bluish line; or, the tooth, on being taken between the thumb and finger, is observed to be slightly or considerably loosened. To any of these indications it is safe to apply the dam as recommended. The pushing up of small pieces of spunk produces an absorption of the gums, and the dam gradually follows, when pieces of tartar heretofore invisible are brought into view, and are readily and easily removed.

Green tartar, or green stain, differs from the salivary calculus by being corrosive in its action. It is not often observed on the teeth in middle or advanced life, but mostly affects the teeth of children about the tenth, twelfth or fourteenth year of age. It is most generally found on the four or six upper front teeth. By means of soft rubber or wooden wheels charged with fine pumice and driven by the dental engine, green tartar may be readily removed.

There is a condition of the gums brought on, we think, by the accumulation of tartar. We find them red, hot, soft, flabby and spongy; bleeding profusely at the slightest touch and hanging in loose, puffy folds about the teeth, to which they have no adhesion. The flow of blood from them is so excessive that it is next to impossible to do anything toward cleansing the teeth when the gums are in this condition. The tartar on these teeth is not hard or even chalky, but soft and glutinous; the saliva is viscid and ropy. In such cases it is our practice to deplete the gums freely. All the loose, flabby folds between the teeth we remove. This is best and quickest and painlessly done with a pair of sharp, curved-blade, pointed scissors. These are passed, with a blade on each side of the loose fold of the gum, between the teeth, and with a quick snap of the handles the congested gum is taken off. After the gums are well rinsed with cold water and the bleeding stopped, we apply to all the incised places a little "iodide of zinc," taken upon a moistened camel-hair pencil, or on a swab of moistened cotton floss. This iodide of zinc should be kept in a well corked bottle, as it rapidly absorbs moisture from the atmosphere, and runs into a semi-fluid state. At the next sitting the case will be in a better con-

dition for the removal of the soft or mucilaginous tartar that will be found around the necks of the teeth, which will be best removed, as suggested, by the aid of the rubber dam.—*The American Journal of Dental Science.*

THE RUBBER DAM.

In addition to the feeling of safety (to a filling being introduced) imparted to the operator when his rubber dam is in position, it will be found that a positive saving of time and material is the result, as the working qualities of the gold are only secured and maintained where absolute dryness exists, the moisture from the breath alone being sufficient to defeat an operation, which has perhaps already cost the dentist hours of labor and perplexity, to say nothing of his throbbing temple and disabled back!

As there are many in the profession practicing in remote places who have never seen the above appliance in practical use, a few words in explanation of the ordinary proceedings may be advisable and appropriate: Before commencing to excavate, it is proper to cut, in the "dam," at least three small holes, varying from the diameter of an ordinary pin's head to that of a small pea; or, perhaps, the safer rule is to regulate the size of the openings by that of the necks of the teeth over which they are designed to go, aiming to secure sufficient tension in all directions, so as to preclude the possibility of the encroachment of the saliva. These openings should be at such a distance from each other as to prevent the "bagging" of the dam when in position, as, should this occur, it will prove a serious hindrance in filling approximal cavities. Having selected, for instance, a *left superior central incisor* with approximal cavity, it is proper to cut into the rubber dam two openings of equal size for the centrals, and one smaller for the left lateral incisor, proceeding to introduce the teeth through their respective openings, until the dam shall invest them above the point of decay, where it should be closely confined by clamps, or some other appliance suited to the case. After the proper position shall have been attained, the upper corners of the apron of rubber may be confined by means of elastic cord and hooks behind the head of the patient, while the lower edge is kept down by weights hanging upon the breast.

The operator will find the above process exceedingly simple, as there is seldom any difficulty in carrying out the plan when the teeth are situated favorably; but in managing molars it will sometimes be found impossible to accomplish the object, without the assistance of suitable forceps and a varied assortment of clamps.

It will also sometimes baffle an inexperienced operator to get the dam between such teeth as grow in very close contact with each other,

but by using thin metallic wedges, a sufficient space may invariably be gained to admit of the adjustment of the rubber over a single tooth at a time.

The dark shade given by the rubber dam to all surrounding parts has been a serious obstacle to its use in posterior approximal cavities in molars. To overcome this difficulty it is necessary, in addition to securing the best possible light, to resort to the assistance afforded by the mouth mirror. We may here be pardoned for calling the attention of inventors and manufacturers of dental goods to the practicability of supplying to the profession mouth glasses which can be attached to adjoining teeth, giving light from a fixed point, in any direction desired during an operation.

An ordinarily small mouth mirror, mounted upon a ball and socket joint, with a few self-adjusting clamps, will be found of infinite advantage in filling cavities, where it is difficult with the ordinary glasses to gain sufficient light. The dam will most effectually prevent the rapid clouding of the mouth glass, which has heretofore rendered the use of the latter so unsatisfactory.

In enumerating the advantages of the article on which we write, we must not fail to note the fact, already made public by more than one gentleman of the profession, that a tooth protected from the secretions of the mouth is infinitely less sensitive than when those fluids are uncontrolled, and here is an argument in favor of its use, claiming the attention of all; for who of us would not gladly diminish the sufferings of those who place themselves in the pale of our professional skill? In addition to the foregoing valuable properties of the rubber dam, we must not omit to touch upon the safeguard it affords in the application of arsenious pastes, carbolic acid, etc., all of which are, without this protection, often more or less liable to injure the soft parts of the mouth.

Some hurry through their dental operations from selfish motives. They are in haste to be rich, and therefore anxious to make every hour of labor count the greatest number of dollars income. Nearly all such come to grief, as they should. Some who are naturally nervous and excitable, are not aware of a want of care—it being a misfortune, and the sooner they overcome this weakness, the better workmen they will be. Others hurry from pride to be smart—continually boasting of how many teeth they can fill in an hour, or how many teeth they can extract in a minute. This is foolish. We should work as rapidly as we can consistently with accuracy. The greatest pride of the true workman is in the perfection of his work, and he is generally modest in his claim.

A CASE OF GENERAL HYPERTROPHY OF THE GUMS, CAUSED BY DISEASED TEETH.

BY HENRY EVANS, L.D.S., DENTAL SURGEON TO THE TENBY COTTAGE HOSPITAL AND PEMBROKE INFIRMARY.

[From British Journal of Dental Surgery.]

About six months ago a gentleman consulted me, suffering from general hypertrophy of the gums. It was a somewhat extreme case, the upper gums being increased so considerably as nearly to cover the crowns of the teeth, and interfering so seriously with the function of mastication that it was only with great difficulty that he could perform that duty. The gums were of a purple color, with thick and rounded margins, and a discharge of purulent matter, exhaling a most offensive odor, oozed from their upper inner surfaces. They bled profusely from the slightest touch, and were so sensitive that the least pressure was attended with excruciating pain. The peculiar itching sensation so often present in this disease was also a source of great annoyance. There could be no doubt but that the condition of the gums was due to dental irritation, set up by the second right superior bicuspid, and the left second and third molars, which were much decayed. I advised extraction, which was submitted to, and on the following day I removed the growth, fungiform in character, by making a horizontal incision entirely through the diseased gums to the crowns of the teeth, and as far back as the growth extended, subsequently freely scarifying the gums, several times at intervals of four days, and prescribed a gargle of dilute phenate of soda, to be used thrice daily. This, together with attention to the regimen of the patient, and perfect cleanliness of the teeth, soon effected a cure.

[Dr. Evans says: "There could be no doubt but that the condition of the gums was due to dental irritation, set up by the second right superior bicuspid and the left second and third molars." Was it not unwise to take this as a matter of course? Would it not have been well for him to have given us the proofs? Irrespective of the extraction, his treatment was good—especially the dilute phenate of soda or phenol sodique. In all irritation and inflammation of the gums, it has probably no superior.—ED.]

Tin-foil for covering plaster casts should be heavy—about No. 10. Take a soft tooth-brush and cake of soap, on which make a good lather, coating completely the surface to be covered with it. Now place your foil and smooth out all the wrinkles with the same brush. You will be surprised to see how nicely it can be removed from the plate. Try it.

SYFAX.

EFFECT OF DIET UPON THE TEETH.

M. l'Abbe Moigno, writing in "Le Monde," says: "We have demonstrated the advantages of black bread over white, as preservative of the teeth, and the following observation lends itself in support of this view: A correspondent of the New York *Herald*, and the commission sent to investigate and report upon the equipment of the Jeannette, were much struck by the beauty of the teeth of the natives of Northern Siberia. Thy found, even in men of sixty and seventy years, complete sets of teeth, at once white, small, and pearl-like, and absolutely sound. Caries and toothache are alike unknown. A medical man of Yákutsk attributed this preservation of the teeth to the habits of the people, and the character of their food, of which black bread formed the staple, as well as to the care taken of the teeth during infancy. Firstly, the teeth are never subjected to the action of sugar in any form whatsoever, and for the very good reason that they never have the chance of buying it. And secondly, they daily consume a large quantity of buttermilk, which drink is alike antisorbutic and antiseptic; and finally, after each meal they are in the habit of chewing a rosin, prepared from a species of spruce, which has the flavor of tar, and this to the intent of dislodging from the teeth and gums all debris of food. This gum or rosin, which is prepared and sold by the chemists of Siberia, is largely used by Russian ladies. What a contrast truly between the wisdom of these natives and the routine carelessness of the vast majority of the people of our dear home, fair France! In how many villages even rich, and in those less well to do, do we find sound teeth the exception, and men and women almost edentulous at the age of thirty, or even twenty years!"

To clear muddy or impure water and to remove the offensive smell from cisterns, put about an ounce of powdered alum to a barrel of water. It will cleanse soap suds or muddy water, and leave it clear and pure. About twice the quantity of fresh slacked lime added with the alum in cisterns, will remove bad smells from cistern water, but it will also harden it more or less.

Pure Soap.—The mildest, and probably also the purest of easily procured soaps is no doubt the kind sold under the name of "White Castile Soap." It comes usually from Livorno, Italy, where it is made from pure olive oil and caustic soda. It is almost neutral, while many of the more pretentious scented soaps, affording abundant lather, are often so alkaline as to be injurious to the skin. The mottled castile soap, made in Marseilles, from olive oil, is also a good article, but not quite of so fine a quality as the Italian product.

Editorial.

WRITE ENGLISH.

What is the use, as soon as we begin to be professional, of throwing what we have to say into a dead language? Is it to appear learned? It certainly cannot be with the expectation of being better understood. There are instances in naming an object, compound, condition or process in the sciences when there may be some excuse for it; but even then we may often find English words, or be able to manufacture them, which would be quite as good, and certainly not more awkward. We know the prominent and sometimes sufficient excuse is that terms can be made of foreign words, or parts of words, which, in compounding, become more significant. This may be so to these learned gentlemen, but for us common people it is questionable. For instance, they speak of a certain muscle as the "*elevateur commun de l'aile du nez et de la levre superieure*," or they say "*elevator labii superioris alæque nasi*," but do we better understand than to name the muscle simply the "superior elevator of the nose?"

Then, again, while there are some names made up of foreign language which are convenient and significant, there are others retained, —perhaps for their ancient sacredness—the etymological significance of which we have outgrown, and are, therefore, misleading.

The above reflections, and especially the last, were forced upon us by reading an article on *Stomatitis*. There were many learned thoughts in the article,—that is, we presume there were—though, as an English scholar, we could not comprehend them, because they were so clothed in the vail of the dead languages. The very caption, *Stomatitis*, was enough to set us thinking. What is *Stomatitis?*—some trouble with the stomach, eh? We look into our Latin dictionary (excuse us,—we are supposed to be treading on professional ground now—we must say "lexicon"); we turn over its pages and find the word comes from *stoma* and *itis*. Well, whatever *itis* may mean, *stoma* is the Latin for stomach. And yet the learned man is not writing about the stomach at all! We turn again to our lexicon and find it defined—"Estomac," from *stoma;* and we go for the word *itis* and find this means inflammation. Have we not, then, "inflammation of the stomach?" We read over what the learned man says of *Stomatitis*, and find our conclusion quite wrong, for he is evidently talking about the mouth, and not about simple inflammation of the mouth, either, but he is trying to enlighten us about the subject of *teething*. Then, why does he not say teething?

Especially as inflammation of the mouth is only one of the incidents of teething, and often not accompanying teething at all. We suppose he is anxious to be accounted learned, and you know all learned men speak so. *Stomatite aphtheuse*, or *stomatitis exsudativa*, is aphtha of the mouth—not of the stomach; *stomatitis catarratis* is catarrhal inflammation of the mucous membrane of the mouth; *stomacace—ace, fetor*—is not a fetor of the stomach, but of the mouth, with bloody discharges from the gums. But, now, really, does it not appear more learned and professional to say, "*Stomatitis nutricum sen materna*" than to say, in plain, homely English, "The sore mouths of nursing women?"

But why call the mouth a stomach? Simply because the ancients did. The mouth is a cavity, and *stoma* means cavity. In ancient times, when language was not as rich as it is now, the ancients called the whole cavity from the lips to the intestines, *stoma*. Of course, therefore, when we speak in the language of our fathers—and how can we appear professional without speaking so?—we must call this whole passage *stoma*, or stomach.

But, to go back to *Stomatitis*, it would puzzle us still more to tell why this should be employed to express inflammation of the mouth as synonymous with teething, for simple inflammation of the mouth is *stomatitis erythematous*. But, then, it will not do for us English scholars to dabble in such learned things.

FILL WELL YOUR ALLOTTED PLACE.

Children are often falsely taught that they may be what they will to be, and their ambition is stimulated to will for some exalted position. There must be servants as well as masters, subordinates as well as superiors, followers as well as leaders. And, say what we will, God has so ordained it. There will be boys and girls and men and women of moderate as well as superior intelligence, and some whose general make-up will allot them to lower places and inferior employment, and which destines them to comparative humbleness and poverty.

Are these things to be regretted? "God has made some as vessels of honor, and others as vessels of dishonor." This Scriptural illustration is not designed to show that any are necessarily disgraced, but that in a royal temple persons must be employed for different purposes; some of a dignified and exalted nature, and others of an inferior and more humble character—all necessary, legitimate and praiseworthy. "For the body is not one member, but many. If the foot shall say, 'Because I am not of the hand I am not of the body,' is it therefore not of the body? And if the ear shall say, 'Because I am not of the eye I am not of the body,' is it therefore not of the body? If the whole

body were the eye, where were the hearing? If the whole were the hearing, where were the smelling? But now hath God set the members, every one of them in the body, as it hath pleased Him. And if they were all one member, where were the body? But now are they all members, yet but one body; and the eye cannot say of the body, 'I have no need of thee,' nor again the head to the foot, 'I have no need of you.'" So in society; the humble shoemaker is just as important as the princely merchant; the sturdy farmer, as the shrewd banker; the day laborer, as the learned professor. Righteous judgment metes to all without reference to clan or class, according to the diligence and intelligence with which talent and opportunity are improved.

If, therefore, we fill well our allotted place, though it may be in an humble sphere, we are doing life's work just as acceptably to God, as honorably to society and as profitably to ourselves as though occupying some distinguished position; "for if there be first a willing mind, it is accepted according to that a man hath, and not according to that he hath not."

Then again, because I can do something my neighbor cannot do, that does not exalt me over him, for if he is faithful in his sphere he can do something I cannot do. In erecting a building, a good hod-carrier is as important in his place as the bricklayer in his; a good carpenter, as a good overseer. A great general coming into disfavor with the King was, as a disgraceful punishment, sent to sweep the streets. Being commiserated by a brother officer, he replied: "As a general I did my best; as a street sweeper I will do my best also. When a general the office honored me, now I will honor the office." With this spirit we shall succeed anywhere and at anything, and find contentment and happiness, and make ourselves useful. Good, faithful and intelligent workmen find reward for their labor in every sphere.

Let us then fill well our present place—do the work directly before us, and, in its doing, feel that we are making the world better because we are doing our work well.

Never mind promotion. If we belong farther up, this will pretty surely come, if we prepare ourselves by perfecting ourselves where we are. The more brains we mix with what we do the more remunerative and pleasant. A laudable ambition to advance to where we can employ all our talents is praiseworthy. But even in this view, we need have no anxiety. The best merchant is he who with patience and faithful work comes up slowly through every step of the business; the best mechanic is one who has filled well his allotted place through all the successive steps up to the most skilful labor; and the best dentist is he who, in his preparation, was not hasty for advancement, but chiefly anxious to mark every step so clearly with research and skill, that when once he became his own master at the chair, he was competent in every sense of that word.

DENTINE.

This is the structure constituting the body of the tooth; it is a hard, highly elastic substance. Its opacity is relieved by a slight translucency, especially in the first stages of caries. The silky luster seen upon its fractured surface when broken is mainly due to air in its tubes, which run inwardly from its surface. Analyses can only give approximately the proportion of its organic to its inorganic substances, because these vary so much in different individuals, and in the same persons at different times. It has about ten per cent water; its cartilaginous mould or matrix constitutes about twenty-eight per cent, and its inorganic or earthy part—principally phosphate and carbonate of lime—more than sixty per cent. This earthy portion may be dissolved out by dilute acid, leaving the matrix of organic matter—a kind of cartilage—presenting a tough, flexible, elastic, translucent structure. If the tooth is submitted to the fire, instead of acid, the animal matter is destroyed, leaving the earthy portion—a porous, friable, white, structureless mass.

The tubes we spoke of as being seen upon breaking a tooth, start from the surface of the pulp and run in a general direction inward, but not always in a straight course, nor at right angles with the surface. Their curvature is often quite marked. These tubes start from the surface of the pulp with open, circular mouths, which soon become smaller, the tubes themselves also diminishing and breaking up into branches at a little distance beneath the outside surface of the dentine. At the inner portion of the dentine these tubes are quite closely packed, but toward the outer surface, where they bifurcate, they are more widely separate.

The peculiar character of the matrix, or cellular tissue of the dentine, produces bands or rings concentric,—that is, running round at various distances from the pulp, and longitudinally—that is, in more or less direct lines from the pulp to the outer portion, which produce laminations. These are often so conspicuous in caries that they can be lifted, layer by layer, till all the dentine is removed from over the pulp.

Dentine is divided into vascular and unvascular. Perhaps it should be more professionally known as maturing and matured dentine. In other words, during the conversion of the soft, bony, vascular membrane into matured, hard, unvascular dentine, the vessels of the pulp from which the dentine is formed recede, so that at all stages, while a capillary net work is to be found just below the boundary layer known as odontoblastic, no vessels, properly so named, are to be found among the cells of the perfectly formed dentine; therefore, it is said to be unvascular. This bony net work is almost or altogether obliterated in the perfectly formed dentine, though it is quite plain in the vascular or forming dentine. They must have existed, therefore, in the pulp,

which has thus been gradually converted into dentine. In fact, the whole pulp is a plexus or net work of cellular membrane; and why the encroaching odontoblastic or boundary layer, and the perfected dentine behind this layer, does not continue to encroach till all the pulp is ossified, is an unsolved problem.

BE SYMPATHETIC.

He that is not of a sympathetic nature has no business in the profession of dentistry or of medicine.

Sympathy is more than kindness, more than sorrow, more than pity. It includes these, but also embraces that realization of the feelings of the commiserated which brings the sympathizer and the sympathized into a wonderful unity of interest. Kindness brings us genial friends, pity brings us sorrowing friends, but sympathy sets us down so intimately beside the afflicted one that his case is our case.

Most may possess it, but not all to the same degree. In some it is almost an instinct; with others it must be cultivated, but with all it should be controlled by prudence and good sense. It is of stunted growth in a selfish man, and with the sordid and coarse it is distorted and unreliable, if found at all.

True sympathy supposes a sensitive nature, a delicate feeling and a discriminating judgment. To possess it, we must be able and willing to put ourselves so intimately into the condition of the sufferer that we can detect the very shade of sufferings, disarm reserve and anticipate relief. Our very silence, and appearance, and looks, will be significant, while all we say and do will be just the right thing in precisely the right time and manner. We will suit ourselves so intimately to the situation that, without any ado or ostentation, and by an almost unconscious influence we can control distress, calm the passions, subdue irritability, modify the disagreeable and hold the attention till the great grief is passed.

This friendly, neighborly feeling may be developed, if only there is true kindness of heart and warmth of affection. At first it may be difficult to apprehend the true fitness of things, so that we may wound the feelings by our awkwardness and repel by the inappropriateness of our methods, but, if we are in earnest, we will soon learn the true language of sympathy and become adepts in catering to its delicate sensibilities and wants.

Perhaps there are few more frequently called on for such sympathy than dentists. And it must be genuine, not put on. Almost any other sentiment can be masked better than this. To reach the heart it must be from the heart. The sham will be detected and spurned as an imposition. But when it wells up spontaneously from an overflowing kindness, how good it is! What pain cannot be better endured by its presence?

THE ERUPTION OF THE TEETH.

Here is a mysterious phenomenon! What produces the movement of the teeth into the places assigned them? Trees grow from tiny twigs by ceaseless accretion; that is, particles are continually being added to the body to produce largeness, and to the ends of the limbs and roots to produce length; but a tooth just bursts through the surface of its ground into its place in the mouth full grown! What has impelled it? It is just as large and just as long when it first appears through the gum as it ever will be. What power could there have been behind it to thrust it upward through bone and gum? Is its movement caused by the pressure of growth of the root as its downward elongation is resisted? This can hardly be, for, 1st. The growth of the root downward is not nearly so rapid as the movement of the body of the tooth upward; 2d. The growth of the crown is prior to the growth of the root; 3rd. While the body of the tooth that thus rises is solid tooth substance, the root is but partly formed and in the progress of its formation downward it is comparatively soft, its ossification as it progresses being quite incomplete; 4th. Teeth which never acquire more than a stunted growth of root and perhaps none at all, break through their osseous envelope and rise just as promptly through bone and gum, as those having roots of the strongest and longest growth; 5th. Teeth having the full, normal length of root, sometimes remain imbedded in the jaw half a lifetime, finally to advance as regularly and to take their places as precisely as those which were erupted in childhood, and the distance they travel is generally much greater. The upward movement of teeth therefore cannot be produced by the reflex force of the growth of the root. Then what is it? Let us acknowledge ignorance. The whole of life and its activities is an unsolved problem.

Absolute Alcohol.—James Stocken says: The use of drying agents for the cavities of teeth having been recently brought under the notice of the profession, and absolute alcohol generally admitted to be the best agent, I beg to suggest to the members of the profession a ready mode of procuring it, namely, the addition of carbonate of potash to the ordinary rectified spirits of wine, in the proportion of one of the former to four of the latter. Owing to the great affinity carbonate of potash has for water, it will abstract the water from the spirit, not entirely, but sufficiently for all practical purposes. This is a plan I have adopted, and is within the reach of all, whereas to procure it in the ordinary way, by distillation with quick-lime, is not.

Remember, you can control your patient better if you control yourself.

BENEVOLENCE IN BUSINESS.

Perhaps the first thought of some, in reading this caption, is, "what has benevolence to do with business? Business has no soul; much less a heart. These are left to another sphere." This is too often the case. We are one thing to our family, another to our friends, and still another to our associates and patrons in business. If we choose, occasionally, to pass out of all these spheres, and act the part of benefactor, that is something quite distinct. And, perhaps, we are pretty careful even then that we take more pity than sympathy, more of the patronizing air of a superior than the love of a fellow, more charity than benevolence.

As business men, we seem to be afraid of entangling our heart strings with our gifts, of elevating our prodigies to the rank of friendship, of showing intimacy with those dependent on us. The great law of nature and of God, as well as our greatest happiness, usefulness and profit require us to take our entire selves with us into every sphere of life. Not that we should flaunt our gifts, display our private cares, make public our family secrets and break down all sacred inclosures. But as business men, we must not forget that we are still *men* in the broadest and deepest sense. Do we give gifts to our friends? It must be done so delicately that no obligation is felt. Do we impart aid to our equals? It must be performed with such disinterestedness that no offence is given. Do we extend sympathy to the afflicted? It must not be done with the cold dignity of one exempt from trouble; we must set ourselves down so closely beside the sufferer as to create a oneness that is reciprocated.

To bring benevolence, which should include all these relationships and feelings, into our common, every-day calling, and make them really a part of our business, seems out of place. But it is not. We should be animated with the sentiment of affection, as well as the principle of justice, in all our transactions. We must be true to our own manhood everywhere, and at all times.

This will include in our business much more than those acts which bring us wealth. God has so wonderfully and intimately mixed us up in this world that "none liveth to himself, and no man dieth to himself." And this dependence is recognized by all of us. If we live in the lower sphere of selfishness we recognize it as an *obligation;* if in the genial atmosphere of Christian brotherhood, it is a *pleasure.* Happy is that man who cheerfully and daily acts upon the sentiment of the Lowly One when he said: "The poor ye have always with you, and when ye will ye may do them good." And there are those here included whose wants are other than a destitution of food.

Excuses are of little account. Avoid the causes for them.

Miscellaneous.

THE MOON AND ITS EFFECTS.

BY A CONNECTICUT PASTOR.

The moon can not boast such great dimensions as the earth. Still it is wonderfully larger than it looks. It looks, say, a foot in diameter; it really is eleven million times that. It is plain that that can not be a small body which, on being carried away from us 240,000 miles, appears as large as the moon. But this is altogether too vague information to content astronomers—astronomers who want to split a second into one thousand parts, and an inch into 200,000. "What is the exact length of the diameter in miles and smallest possible fractions of a mile?" demand they. And they answer themselves in this way. Suppose two lines drawn from the earth's center to opposite sides of the moon; then the real diameter of the moon makes with these a triangle. Now measure the moon's apparent diameter, which is the angle included between the supposed lines. The lines are about 240,000 miles each; the angle is about 314. Then the simplest sort of mathematics gives you two thousand one hundred and sixty miles for the required diameter.

Though the moon is so small a body compared with the earth, and withal so remote from us, it is able to produce on us some very remarkable effects. Most certainly I do not here refer to its supposed bearing on the weather, on the complexion, on the health, on the mind in producing or modifying insanity, on the proper times for planting, reaping, felling timber, killing of domestic animals. Though the impression was once almost universal, and is still exceedingly prevalent, that the moon is a powerful and controlling agent in these and such particulars, still we must admit that it is an altogether erroneous impression. This has been very satisfactorily established by the extended observations and experiments of several European philosophers, and especially of the illustrious Arago. No, I refer to quite a different class of phenomena. And, first, the moon takes hold of that protuberant equator of ours, as if it were a mere convenience for wrestling, and pulls and twists it about after itself, making the pole describe a wavy, nodding circle of some 46° diameter through the sky—a little more than the height of the North Star above our horizon. This effect is due partly to the sun; but the moon is the chief agent. For long periods, however, this motion of the pole would not be noticed by

common observers; it is so exceedingly slow, requiring about twenty-six thousand years to make an entire revolution. In consequence of it, the axis of the earth which now points nearly at the North Star, will, after pointing a little nearer to it, gradually recede, and twelve thousand years hence point 40° away from it; and then the bright star Lyra will be the pole star. Let the men of the year 13860 look in the northwest for their north.

Another more noticeable effect of the moon's attractions is the tides. Twice a day the earth, like every good man, attempts communion with the sky. Twice a day the bosom of the seas swells heavenward. The explanation is this: As the earth, in revolving on its axis, presents all parts of its surface in succession to the moon, that body, by the attraction of gravitation, draws up the water in a ridge toward itself, at the same time making a similar ridge by drawing the earth away from the water on the opposite side; so that we have two great tidal swells, convex toward the west, about twelve hours apart, apparently following the moon in its daily movement around the earth; checked somewhat in their movement by their own inertia and friction among the barriers of shores and irregularities of sea-beds; reflected in this direction and that, according to the lay and shape of coasts; about two and a half feet high on the average, but heaped up as high as fifty or even one hundred and twenty feet in some confined places of peculiar conformation, and then almost or quite dissipated by shoals and other dispersive agencies. Thus it would seem to a bird's-eye view. But really there is no progressive movement of the water in the open sea in the case of the tides. No European water is rolled over to America at the rate of a thousand miles an hour. It is merely a successive rising and sinking of the sea all around the world. The effect is owing in part to the attraction of the sun; but the moon is the chief agent. When the sun and moon act in the same line, or nearly so,—at the times of new and full moon—the tide-swell is considerably increased, making what are called spring tides. When they act at right angles to each other, they impair each other's influence and the tide-swell is decreased, making what are called neap tides.

This constant heaving of the water tends to keep it pure. It also agitates to some extent the atmosphere, and so keeps that in a livelier and purer state. It enables all the coasts of the world to become vast beds of a peculiar animal and vegetable life, and twice a day throws open the repositories to the plundering hands of men. The farmer wants his sea weed and salt grass. All persons, almost, want their shell-fish. Millions of people find their chief support in those vast tribes of animals that can live only where tides are felt. Shoals are laid bare and quickened by the sun. The tide-wave brings up the water again with its flotilla of semi-marine animals and influences to

impregnate and refresh the congenial sand or slime. So the beach swarms. Races of creatures belonging to both land and sea, and partaking of the qualities of both, present themselves for our tables in countless numbers—not by spontaneous generation, that figment of atheists, but by the good providence and almighty power of God.

ALCOHOL

Aside from the salvation of human souls, their is no subject in morals, politics, or social life of so much importance as the nature, uses and abuses of alcohol. Our first article in this number of the ITEMS, is an able argument, tending to show that, not only the masses of society, but most physicians as well, have been holding to, and acting on, a false theory in reference to its therapeutic properties and uses. If a mistake has been made, which we sincerely believe to be the case, it has been almost universal, as well as radical. In accordance with the sentiments of Dr. Nichols, whose precise language is not now before us, we regard alcohol as frequently a convenience, but never a necessity. If it were blotted out of existence, and with it all knowledge and memory in reference to its mode of preparation and manufacture, society would be greatly the gainer, and not the slightest arrest in the progress of the arts and sciences would be observable. In view, then, of the manifold woes and sorrows brought on the human race by its use, as a luxury, why can we not rise as one man and banish it from the world, to the abyss of the bottomless pit, where it belongs?

The early and thorough education of one who proposes to enter the profession of dentistry, is of the greatest importance. The eagerness of the American people to enter business life, and the haste to get rich, are the glory and vice of America. The uneducated man and dentist goes out into the world, and is alone. Letters, philosophy and the sciences have no interest to him, and their delights to him will forever remain closed. He claims that he is not appreciated at his true worth. It is his own fault; for if he enter the circle of the educated, he must be educated himself to their standard. I would have no one commence the practice of dentistry at this day unless he be a graduate of the dental college. I would have no one enter a dental college unless he has spent two years in the office of a competent practitioner. Colleges are blamed in a manner for the way they make dentists. In a measure they are unjustly censured. The college has done more for the profession than all other means combined. Young men are taken by some of our practitioners, sent at once to college, without any previous instruction, and the college, in eight months, is expected to make thorough dentists of them.—*C. S. Stockton.*

OUR DRINKING WATER.

BY J. G. RICHARDSON.

Water is the second great material necessary for human existence, the first being air. It is estimated that ordinarily man can live without air from two to ten minutes; without water for three, four or five days; without sleep for seven days, and without food for ten or fifteen days.

But if water is thus an absolute requisite for life, pure water is no less an imperative necessity for health, and since this fluid is especially apt to become contaminated, as a result of its nearly universal solvent powers, it behooves us to watch with exceeding care the sources of our supply.

Water constitutes about three fourths of the surface of the earth, and the greater part of the bodies of man and other animals; some vegetables, such as celery and cabbage, may contain as much as ninety-five per cent of it. A healthy individual requires from three to five pints of water daily, nearly one-third of this quantity being contained in articles of diet, and the rest supplied to the system in the form of liquids.

Rain water being the condensed vapor which is constantly given off from the surface of seas, lakes and rivers, and therefore the product of a natural distillation is the purest of all forms ordinarily met with, if collected as it falls in clean vessels. Practically, if it is obtained from clean slate or galvanized iron roofs, and preserved in suitable cisterns, it is the best water for our use, but very often impurities from the surfaces upon which it descends, impurities from the pipes through which it flows (such as lead), and impurities of storage from foul cisterns, etc., render it less suitable for drinking and cooking purposes than properly selected well-water.

Some hundred years ago a curious epidemic, characterized by pain in the stomach and bowels, obstinate constipation, and, later on in the attack, symptoms of palsy, broke out in the city of Amsterdam, for a time baffling the skill of the ablest physicians, until at last it was discovered to be lead poisoning, due to the substitution of lead for tile roofs, from which the drinking water was collected. The new fashioned metallic roofs were soon abandoned, and the epidemic promptly disappeared.

Rivers are probably the most usual sources of supply for our drinking waters, and if due care is exercised to prevent contamination of the liquid from sewers, factories, etc., along the banks of the streams, this variety of water is one of the least objectionable.

A certain amount of saline impurity, especially of the sulphates and chlorines of the alkaline earths, must be present in order to render river water safe from contamination by lead pipes, if these are used for

distributing the fluid, as they are in most of our large cities and towns. The way in which these soluble salts act is not by directly preventing the water from dissolving the lead, but by forming with the metal an insoluble coating over the inner surface of the pipe, which mechanically precludes the water from having any action upon the metallic surface. It is on account of the very purity of rain water from these saline compounds, that lead pipes or lead-lined cisterns should never be used for its conveyance or retention, and many cases of obscure and dangerous illness in country houses have of late years been traced to neglect of this precaution against the entrance of a potent cause of disease into our system.

Much might be written to advantage in regard to the impurities of river water, but I am compelled, by want of space, to hasten on to the subject of well water, the contaminations of which cause a large proportion of the acute disorders affecting inhabitants of the rural districts.

When rain falls upon the surface of the ground, a portion of the moisture runs off into brooks, creeks and rivers, but a much larger part soaks downwards through the earth, and after a few hours or days finds its way by the minute holes in the soil into our wells. In the course of its journey towards the center of the earth, it dissolves, as already intimated, numerous mineral ingredients, which may render it unpalatable, or even to some degree unwholesome, although seldom actually noxious to health. It is far different, however, with materials which it meets with in its way, derived from the animal kingdom, since these often change our drinking water into slow and insidious poison, or into swift agents of sudden destruction. Two of the most fatal scourges of humanity—cholera and typhoid fever—are particularly apt to be transmitted from one victim to another by way of contaminated well water.

THE SMALLER DENTAL ASSOCIATIONS.

The State and National Societies do great good. But what these are to our more prominent dentists, smaller associations are to the rank and file within their limits. The Central Association of New Jersey is a notable example. All the dentists in that part of the State are invited to attend its monthly meetings. The discussions are somewhat informal, so as to encourage the more diffident, and yet practical subjects are handled with much intelligence. In Philadelphia there are two such societies, and there are many more in different parts of the country. Let the formation of such local organizations be encouraged. Much wisdom is, however, necessary in conducting them so as to avoid bickerings, animosities, and class distinctions. The more intelligent and worthy are generally more democratic and genial than the superficial braggart who seeks by assumption and annoyance to make up for merit.

SLEEP.

There is no danger of wearing this subject threadbare, for people are beginning to wake up to the fact that plenty of sleep is requisite to health, particularly in the case of brain workers. The more sleep the brain gets the better does the brain work. All great brain workers have been great sleepers. Sir Walter Scott could never do with less than ten hours. A fool may want eight hours, as George III. said, but a philosopher wants nine. The men who have been the greatest generals are the men who could sleep at will. The greatest speakers in the House of Commons have been the men who go to sleep there as much as they like. This explained the juvenility of the aged Palmerston. Sleep is in many cases the best of medicines. A friend says that he treated himself for a fever. He went to bed with a large pitcher of lemonade by his side. He drank and slept till he drank and slept himself well. When you take to your bed, get all the sleep you can out of your bedstead, even though, to quote Dick Swiveler's saying, you pay for a double-bedded room, confessing that you have taken a most unreasonable amount out of a single bed. You will be banking a whole store of recuperative energy. It is safe to say of any man that if he sleeps well he will do well.—*Ex.*

[We hope the lazy, thoughtless drones who sleep away the precious morning hours will not make the above a defense for their sleepy inactivity. "Go to the ant, thou sluggard; consider her ways and be wise; which having no guide, overseer and ruler, provideth her meat in the summer and gathereth her food in the harvest. How long wilt thou sleep, sluggard? When wilt thou arise out of thy sleep? Yet a little sleep, a little slumber, a little folding of the hands to sleep: So shall thy poverty come as one that traveleth, (a robber) and thy want as an armed man."—ED.]

By going a few minutes sooner or later, by stopping to speak with a friend on the corner, by meeting this man or that, or by turning down this street instead of the other, we may let slip some impending evil, by which the whole current of our lives would have been changed. There is no possible solution to the dark enigma but the one word, "Providence."—*Longfellow.*

Practically, there seems to be two standards of morals—one for a man and the other for a woman. Do not we men respect a woman's graces? Then, why not imitate them? Do we not admire her virtues? Then, why not adopt them? Were she to imitate many of us in some of our habits, it would disgust us; then, should we not abandon them ourselves?

The translation for us of "Surgical Anæsthesia," by A. N. Roussel, D.D.S., of Brooklyn, is well worthy of general perusal.